CLAIMS

1. A lithographic projection apparatus comprising:

a radiation system to supply a projection beam of electromagnetic radiation having a wavelength of 250nm or less;

a support structure adapted to support patterning structure which can be used to pattern the projection beam according to a desired pattern;

a substrate table to hold a substrate;

a projection system to project the patterned beam onto a target portion of the substrate; and

a gas supply constructed and arranged to supply a purge gas to a space in said apparatus, said space containing an optical component, wherein said purge gas comprises an oxygen-containing species selected from water, nitrogen oxide and oxygen-containing hydrocarbons.

2. An apparatus according to claim 1, wherein said purge gas comprises an inert gas, and wherein the total amount of oxygen-containing species present in said purge gas is from 1 ppb to 10 ppm by volume.

3. An apparatus as in claim 2, wherein the inert gas comprises helium, argon, nitrogen or a mixture thereof.

4. An apparatus according to claim 1, wherein said oxygen-containing species is selected from water, nitrogen oxide, alcohols, alkanones and ethers.

5. An apparatus according to claim 1, wherein said space is substantially evacuated, and wherein a total partial pressure of the oxygen-containing species in said space is from $1x10^{-4}$ Pa to 1 Pa.

6. An apparatus according to claim 1, which apparatus further comprises a further supply of electromagnetic radiation having a wavelength of 250nm or less and arranged to supply such radiation onto at least one of said optical component and said patterning structure.

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6. An apparatus according to claim 1, which apparatus further comprises a separate cleaning unit to clean patterning structure comprising a space, a radiation source for supplying and directing into said space radiation having wavelengths of 250 nm or less and a gas supply for supplying a purge gas into said space, wherein said purge gas comprises an oxygen-containing species selected from water, nitrogen oxide and oxygen-containing hydrocarbons.

8 X. A device manufacturing method comprising:

projecting a patterned beam of radiation having a wavelength of 250nm or less onto a target portion of a layer of radiation-sensitive material on a substrate, and

cleaning an optical component for use in the apparatus by irradiating a space containing said optical component with radiation having a wavelength of less than 250 nm in the presence of an oxygen-containing species selected from water, nitrogen oxide and oxygen-containing hydrocarbons.

9 8. A method according to claim 7, further comprising the step of supplying to said space containing said optical component and/or said patterning structure a purge gas comprising an inert gas, preferably helium, argon, nitrogen or a mixture thereof, and wherein the total amount of oxygen-containing species present in said purge gas is from 1 ppb to 10 ppm by volume.

10 9. A method according to claim 7, further comprising supplying to said space containing said optical component and/or said patterning structure a purge gas comprising oxygen-containing species selected from water, nitrogen oxide, alcohols, alkanones and ethers.

11 10. A method according to claim 7, wherein said cleaning step is carried out separately from said step of projecting the patterned beam of radiation.

12 11. A device manufactured according to the method of claim 7.

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12. A cleaning unit for cleaning contaminated objects comprising a space, a radiation source for supplying and directing into said space radiation having wavelengths of 250 nm or less and a gas supply for supplying a purge gas into said space, wherein said purge gas comprises an oxygen-containing species selected from water, nitrogen oxide and oxygen-containing hydrocarbons.

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13. A method of cleaning contaminated objects comprising:

directing radiation having a wavelength of 250 nm or less onto an object in a space, and

supplying a purge gas to said space, wherein the purge gas comprises an oxygen-containing species selected from water, nitrogen oxide and oxygen-containing hydrocarbons.